

### Remarks / Argument

Claim 6 is the only claim still pending in the application.

In view of the remarks/arguments presented, and considering the Affidavit previously submitted, applicants believe that the claim now present in the application is allowable. If however, the Examiner determines that any unresolved issues requiring adverse action regarding any of the claims, it is requested that the Examiner telephone the undersigned, Henry S. Goldfine, at (973)724-3411, so that a resolution can be obtained as expeditiously as possible.

### Claim Rejection – 35 USC § 103(a)

Claim 6 stands rejected under 35 U.S.C § 103(a) as being obvious over Hamilton et al – USP 5,602,361 (hereinafter “*Hamilton*”), in view of Mullay et al., -- UPS 5,507,893 (hereinafter “*Mullay*”) and Manning et al – USP 6,607,618 (hereinafter “*Manning*”). The Examiner stating that:

- (1) *Hamilton* discloses known gun-type propellants that comprise 76.6% of 13.25% nitrocellulose, 20% plasticizer such as nitroglycerine (a high energy plasticizer), 0.6% ethyl centralite and 0.4% graphite. *Hamilton* also discloses the use of acetyl triethyl citrate with other gun type propellants;
- (2) *Mullay* teaches the use of 5 to 10% of BuNENA as an energetic plasticizer that is a substitute for nitroglycerin in a gun propellant, i.e. thereby inferring the substitution of BuNENA for nitroglycerin in the *Hamilton* disclosure; and
- (3) *Manning* teaches that it is known to use 12.6% nitrogen nitrocellulose and also mixtures of nitrocellulose of 12.6% and 13.35% nitrogen. *Manning* additionally discloses the use of additives such as graphite, potassium sulfate,

and Candeililla wax with gun propellants. Thereby inferring the use such nitrogen contents and additives in applicants' claimed invention.

Respectfully, in response:

Obviousness under USC §103 is a question of law – requiring some expectation of success based upon the prior art, not in the applicant's disclosure. See, *Amgen, Inc. v. Chugai Pharmaceutical Co., Ltd.*, 18 USPQ2d 1016, 1022 (Fed.Cir. 1991). The consistent criteria for determination of obviousness is whether the prior art would have suggested to one of ordinary skill in the art that this process should be carried out and would have a reasonable likelihood of success, viewed in the light of the prior art. See, *Burlington Industries v. Quigg*, 3 USPQ2d, 1436, 1438 (Fed. Cir. 1987); *In re Hedges*, 228 USPQ 685, 687 (Fed.Cir. 1986); *Orthopedic Equipment Co. v. United States*, 217 USPQ 193, 200 (Fed.Cir. 1983); *In re Rinehart*, 189 USPQ 143, 148 (CCPA 1976).

In the subject rejection, the Examiner has made a basic assumption, that the particular ingredients disclosed within the cited *Hamilton*, *Mullay* and *Manning* references can be merely interchanged – such that it would be obvious to one of ordinary skill to simply combine such ingredients to a successful create applicants' claimed invention. A close reading of these references and others that deal with these particular ingredients shows that this is not the case – and therefore this rejection should be withdrawn. Specifically:

A. The Examiner concluded that it would be obvious for one of ordinary skill in the art to replace the nitroglycerin in the dual base nitrocellulose & nitroglycerine double base HPC-96 formula cited in *Hamilton* – considering the disclosure by *Mullay*, Col. 1, lines 28-32, stating:

- “An important use for these NENA compounds is as a plasticizer in propellants and explosives. In these applications, NENA materials can replace less safe energetic molecules such as nitroglycerin...”

However, there is nothing obvious with replacing the 20% nitroglycerin component of a ~77% nitrocellulose/20% nitroglycerin explosive double base HPC-96 formulation, with applicant's single 65% to about 95% nitrocellulose single base formulation, claiming only 5% BuNENA plasticizer therein. Nothing in the prior art even hints, let alone predicts any success with replacing 100% of one component with 75% less of another – while maintaining functional explosive efficacy, and gaining the advantage, as claimed, of an “insensitive” gun propellant.

Referring back to the May 4<sup>th</sup> affidavit submitted by the inventor, Thelma G. Manning – this lower usage is all the more surprising as her affidavit proves that BuNena is a “very low energy” material - -such that one of ordinary skill would certainly not consider 5% BuNENA substitutable for 20% nitroglycerin.

Finally, such lesser usage of BuNENA is further unexpected considering the very prior art cited by the Examiner, wherein:

- i. In the cited *Mullay* reference – the ratio of the energetic, ammonium perchlorate is 1:1 with the NENA component; and
- ii. In the *Manning* reference – the nitroester-based plasticizer comprises about 34% of the propellant weight.

So, there is further proof, that applicants' claim of only 5% BuNENA in the subject application is not only not obvious – but, counter-intuitive and surprising (i.e. the opposite of obvious).

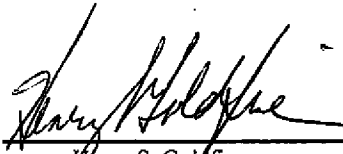
B. Also detailed in the May 4<sup>th</sup> affidavit:

...it is known that using greater than 10% BuNENA overplasticizes a gun propellant with a nitrocellulose based binder/explosive system, causing bubbles and further resulting in a brittle formulation – that has significant problems.

Such that one of ordinary skill in the art would not consider, as the Examiner proposed, replacing the 20% nitroglycerin formulation of Hamilton with 20% BuNENA – let alone only 5% BuNENA (as detailed above).

In conclusion, applicants respectfully submit that all of the remaining Claim now present fully complies with 35 USC §102, §103, and §112, and is therefore allowable. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

Respectfully submitted,



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